Fisheries and Marine Sciences - Bachelor of Science

Current Compliance Year: 2023-2024
Mid-Cycle Review

Recent Recommendations

Feedback will include recommendations from the last Expedited Review or from your most recent review by your school or college. You may not see any feedback or recommendations until you have completed your first full or mid-cycle review.

Response to Previous Recommendations (if any):

N/A

Student Learning Outcomes

The previous Student Learning Outcomes Assessment has been submitted as its own report. Going forward you will use the following prompts to discuss the success of your most recent SLOA plan and address your assessment activities since your last SLOA report (typically the past two years or since your last program review).

Learning outcomes feedback from last review:

Feedback will be provided once you have completed a full or mid-cycle review.

Discuss your SLOA findings, changes you are making and what you hope to see as a result:

The existing SLOA Plan feedback was "strong". We do not see a need to amend our plan. Courses that address the program's four intended outcomes were added to the SLOA Plan. The following assessment is based on 12 students who graduated during the review period. The learning outcomes were assessed as described in the last assessment summary. In terms of the four academic skills (writing ability, verbal communication, critical thinking and core knowledge) students showed improvement as determined from the difference between the introductory FISH 110 course evaluation and the capstone evaluation. Based on a scale from 1 (deficient) to 3 (strong), average cohort scores showed some improvement in writing (1.9 to 2.2), oral communication (2.2 to 2.4), critical thinking (2.1 to 2.3), and greater improvement in core knowledge (1.7 to 2.4). Students also showed improvement in these categories as collectively determined by the faculty who taught early (100 & 200 level) and late (300 and 400 level) courses. Here the distinction was generally more pronounced. writing (1.8 to 2.3), oral communication (1.8 to 2.3), critical thinking (2.1 to 2.5), and greater improvement in core knowledge (2.0 to 2.4). In terms of employment skills through experiential learning/internships, all students were rated ≥3 on a 1 (poor) to 5 (excellent) scale. The average cohort scores in the 13 categories ranged from 4.4 to 4.9, and the overall score for the cohort was 4.7 Graduates are very satisfied (4) or satisfied (1) with the program and feel prepared to join the workforce or graduate programs.

Discuss the curricular changes made based on assessing your SLO. If you haven't made any curricular changes, please explain why not and address what you did notice in the review, including strengths of your curriculum through the assessment of your outcomes:

In response to the assessment of our student learning outcomes, the Fisheries and Marine Science BS Program was restructured to better serve the specific needs of our undergraduate students.

Asynchronous courses were added to meet the needs of our undergraduate students, some of whom are attending classes remotely outside of regular hours to accommodate their work/childcare schedules. The marine science concentration was replaced with the following concentrations: marine biology, oceanography, general (no concentration) and fisheries science. The restructuring of our BS program has led to an 11% (62 to 70) increase in enrollment from AY22-23 to AY23-24. In an effort to further develop the quantitative, critical thinking, oral and written communication skills of our undergraduate students, new courses were designed to develop skills specific to fisheries and marine sciences, e.g., OCN F303 Data Analysis and Writing for Aquatic Sciences, MBI F320 Aquatic Ecology, capstone course MBI 482 Human Impacts to the Marine Biosphere and OCN F425 Subarctic Oceanography Field Course. These courses directly implement pedagogical approaches that specifically promote our learning outcomes, including: writing research papers that use the primary scientific literature and orally presenting synthesized scientific information that demonstrates knowledge of core fisheries and marine science principles, for example. These skills are critical for entry into the job market. The BS program had a >80% graduation informed persistence rate from FY21 to FY23, indicating expressed interest of our undergraduate students to work towards degree completion.

Are communication outcomes embedded in the SLOA Plan?

As of 2017 all Baccalaureate programs were required to embed the communication outcomes within their SLOA Plans, this is optional for non-Baccalaureate programs.

Embedded

Student Success

To access the Student Success Dashboard please sign into a UA computer with VPN connection (if not on campus). You will need your UA credentials and it is best accessed with the most updated version of Chrome, Edge, Firefox or Safari browsers; Internet Explorer is not supported. You will need to filter the data to see your programs. If you need assistance in finding the data for your programs, please contact your data liaison or Julia Manfredini in the PAIR office.

Data Liaisons

Each school or college has a team of Data Liaisons to help you analyze the data provided in the portal and may be able to help you see your data in multiple contexts. You can find a list of data liaisons on the resources page for Program Review.

The college or school level committee will also have access to this data with the goal that by providing these visualizations data availability will be increased.

Data supplied within the dashboard linked below is intended for Academic Program Review and not for any other purpose.

Student Success Data Dashboard

Previous Feedback

Feedback will be provided once you have completed a full or mid-cycle review.

Student Success Data Trends: (please indicate the trends that apply to your program)

Increase in majors,Decline in degrees awarded,Decrease in pass rates,Increase in SCH,No change in persistence,Equity gaps

If equity gaps were found in any of your disaggregated student success data, please explain how you plan to address those gaps. Please contact your data liaison or make an appointment with Julia Manfredini to learn more about analyzing your data.

Few trends are apparent. The pass rate had a slight decrease for students [redacted], while [redacted] students pass rate improved slightly. The pass rate for [redacted] students, [redacted], and [redacted] shows decline. "Incomplete" grades are included in pass rate statistics. Incompletes increased during and after COVID years. We will first take a look into the role of "incompletes" in this apparent equity gap,
Although [redacted] did not graduate over the past two years, majors receiving [redacted] has increased.
Sample size gives misleading trends in graduation rates for all groups.

Optional Data Explanation

Feel free to share more of your thoughts on the data provided.

High Impact Practices

According to the AAC&U, High-Impact Educational Practices "have been widely tested and have been shown to be beneficial to college students from many backgrounds." UAF is particularly interested in Undergraduate Research and/or Scholarly Activity because it is one of our mission fulfillment indicators, but all of these researched High-Impact Educational Practices should be reflected in your program's student learning outcomes and curriculum.

Previous Feedback

Feedback will be provided once you have completed a full or mid-cycle review.

High-Impact Practices Used in this Program

Please use the following fields to discuss how your program is using the high-impact practices, successes and known issues and solutions, or ways you are considering incorporating them in the future. If you are not using any of the high-impact practices listed, please use the "Other or None of These," filed to share what your program is doing to help students be successful.

High Impact Practices that currently apply to your program:

Undergraduate Research,Internships,Capstone Courses and Projects,Collaborative Assignments and Projects,First-Year Seminars and Experiences,Writing-Intensive Courses,Diversity/Global Learning

Collaborative Assignments & Projects

Fisheries and ocean sciences are highly collaborative fields, and we endevour to instill the idea of working collaboratively to our students through a variety of course assignments and projects. In-person and on-line courses include collaborative work, as do lower and upper level courses. An example of a collaborative project in our OCE 211 on-line course is the creation of public service announcements about ocean issues by teams of at least 3 students. Upper level field courses require collaborative work, starting from the preparation of gear and field equipment, to the creation of a field plan, its execution, and packing of samples and gear at the end of the course.

Undergraduate Research

CFOS recognizes the importance of undergraduate research. We ensure students in all the concentrations are able to participate in research experiences through various means. There is a required internship, capstone projects often involve research, and field courses that require group research. In addition, many of our students can participate in undergraduate research through URSA grants, with CFOS faculty as their advisors.

Diversity/Global Learning

While our courses are STEM-based, they do focus on patterns and processes present in the aquatic environment across the globe, from Antarctica to the deep sea. OCN courses are global by nature, and other courses in the BS program curriculum aim to provide scientific examples that include regions of interest outside of the US, as many of the students that graduate from our program eventually transition to working for various agencies, Tribal Nations and nonprofits that operate well beyond the borders of Alaska.

ePortfolios

n/a

First-Year Seminars & Experiences

Students are required to take FISH 102 during their first year. This 1 credit seminar course helps build cohorts with incoming students

Writing-Intensive Courses

Many of our undergraduate courses focus specifically on science communication through writing. Upper division courses such as OCN F303 Data Analysis and Writing, MBI 482 Human Impacts to the Marine Biosphere, MBI F306 Aquatic Invertebrate Zoology, for example, incorporate scientific writing into the curriculum using the peer-reviewed literature.

Service-Learning and/or Community-based Learning

n/a

Internships

Students are required to do an internship as part of their degree. The internship can vary depending on the student's particular research/professional interest as it is intended to provide real life experience using the tools and information our students gain through our BS program.

Capstone Courses & Projects

Students are required to do a Capstone course as part of their degree. Capstone courses with a fisheries, marine biology or oceanography focus are available. These capstone courses integrate elements of our student learning outcomes, including scientific writing, oral presentations and data analysis, ensuring that our students have experience utilizing skills that are crucial in today's aquatic science workforce.

Other or None of these (explain)

Submission

Submitter & Collaborator Names

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Submitter Email

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College or School Review Committee

The college or school committees set the tone for helping each program feel seen during this process. We have provided you with strength-based feedback tags to attach to this program review. Please select as many as applicable.

Overall Recommendations

Explanation of Recommendations

Many of the comments for the Fisheries and Marine Sciences BS and Fisheries BA are the same because, outside of the student success data, the program reviews were nearly identical. SLOA plans are very similar or identical for the undergraduate programs (3 out of 4 SLOs were identical). It is essential that different programs have different outcomes - if students are intended to learn the same things, how are the programs differentiated? Something to resolve, per some of the guidance below, for the full-cycle review in two years. Also, there were several spelling errors throughout the document that should have been caught prior to submission.
The review panel acknowledges the time and effort that went into preparing the mid-cycle program review for the Fisheries and Marine Sciences BS program. The review panel appreciates that the program has made curricular changes to address student needs and provided a thorough overview of the data trends (student success data) and narrative for the HIPs (high-impact practices). The review panel would also like to emphasize the need for the full program review in two years and how it has addressed any declines in student success metrics.

Learning Outcomes Feedback

Requires Minor Revision

Student Learning Outcomes Assessment Feedback (tags)

Strong alignment with SLOA plan,"Clear, concise presentation of findings"

Student Learning Outcomes Assessment Feedback (narrative)

The program provided 4 SLOs for the Fisheries and Marine Sciences BS SLOA plan. The review panel offers the following recommendations to improve upon the program's SLOAs:
- The SLOA plan for this degree program was listed as BS Fisheries and Ocean Sciences; please correct to reflect BS Fisheries and Marine Sciences.
- SLO #s1-3 were appropriate as measures of student learning.
- SLO # 4 is program outcomes and not tied to student learning.
- The recommendation from the review panel is to reduce the number of SLOs from 4 to 3 by eliminating SLO #4. The program is encouraged to retain this measure of outcome assessment (#4) for their own internal tracking purposes (just not use it as part of program review). Post-graduation activities, such as graduate school/job placement, are not considered an assessment of student learning and are instead program outcomes. Per guidance from the NWCCU for accreditation purposes, they recommend that degree programs have between 3-5 SLOs per program (so the 3 remaining SLOs would meet that requirement).
- A 4th or 5th SLO could be added that directly assesses student learning from the degree program. The program might consider revising the outcomes to include more "action" words. It is difficult to assess things like "understand" or "recognize." "Identify", "explain", or "analyze" are clearer outcomes to assess. https://tips.uark.edu/blooms-taxonomy-verb-chart/.
The program provided an assessment plan for collecting data as well as a process to evaluate the SLOs. The data/artifacts and rubrics were provided. The implementation plan in the SLOA (far right column)

lacked adequate detail (in comparison to the Fisheries BA SLOA). The summary of the SLOA was more descriptive than the SLOA plan table.
Noted curricular changes which included adding asynchronous courses to meet the needs of undergraduate students, some of whom are attending classes remotely outside of Alaska. Also, this program was restructured (via the asynchronous option) which led to increased enrollment.
Following NWCCU guidance, SLOA plans must emphasize "closing the loop" and continuous improvement, ensuring each SLO within the plan is assessed individually to verify alignment with program objectives. If a SLO fails to produce the expected assessment outcome, adjustments to SLO language, substantial changes to the SLO, or revisions to data collection rubrics are necessary to ensure alignment and facilitate program improvement.

Student Success & Equity Feedback

The program noted an increase in majors (56 to 70) and SCH (20 to 22.3), a decline in degrees awarded (9 to 3) and pass rates (95.56 to 87.33%), no change in GIP (increased from 73.3 to 83%), and equity gaps (indicated lower pass rates for women, AKN, and first gen students). The program also noted that small sample sizes make it difficult to identify trends (plus data tied to BA which is difficult to disaggregate).
The review panel feels that it would be beneficial to see how the program intends to address any declines in student success metrics, specifically for those demographics with lower pass rates ([redacted] and [redacted] students).

High-Impact Practices Feedback

The program identified writing-intensive courses, collaborative assignments/projects, first-year seminars/experiences, diversity/global learning, internships, and capstone courses/projects, and UG research as HIPs. A narrative was provided for each HIP, but it was not clear where these HIPs fit into the program or if all students are required to complete them to meet graduation requirements.
The review panel recommends including examples to demonstrate/highlight each HIP. For example, what are examples of capstone course projects?
What percentage of students participate in each HIP for those that are optional?
The review panel recognizes that the HIPs employed by the Fisheries program are all positive and meaningful in preparing students to enter the workforce.

UNIVERSITY OF ALASKA FAIRBANKS

Student Learning Outcomes Assessment Plan
B.S. Fisheries and Ocean Sciences

College of Fisheries and Ocean Sciences

November 2023

CFOS MISSION: The College of Fisheries and Ocean Sciences supports the needs of Alaska and its communities, the nation and the international community through research and training the next generation of scholars and leaders in the wise use of Alaskan and Arctic aquatic natural resources.

CFOS VISION: As one of the largest combined research and academic organizations in the University of Alaska system, and one of the most diverse colleges in both geographic reach and academic mission, we seek to be a:

- World-class ocean and inland aquatic research and educational organization, recognized as such by peers in the academic community and funding agencies.
- Primary source of knowledge, operational expertise, and basic and applied research to manage freshwater, estuarine and ocean resources in Alaska, including the Arctic.
- Source of well-trained and highly motivated graduates to staff organizations and agencies, in particular those in Alaska responsible for management of Alaskan and Arctic waters and their renewable resources.
- College of choice for faculty and students with interest in waters off Alaska, including the Arctic, and their renewable resources.
- Trusted steward of state and national research and educational facilities.

Intended Objectives/Outcomes	Assessment Criteria and Procedures	Implementation (what, when, who)
Develop strong critical thinking and oral and written communication skills.	Assessment of critical thinking, oral and written communication skills assessed in introductory courses, capstone experience and experiential learning requirement, as specified in the course catalog. **Goal:** majority of students show progress between introductory and capstone experiences. **Goal:** At the end of their experiential learning requirement, majority of students meet or exceed entry-level professional standards. **Goal:** Majority of graduating students meet or exceed entry-level professional standards.	**Courses:** FISH 100-400 level, MBI 200-400 level, OCN 200-400 level. **Artifacts:** a) Annual assessment of students completing introductory course and capstone experience by faculty teaching these courses b) Mentor evaluation form for experiential learning requirement c) Annual assessment instrument of students graduating from the program
Demonstrate core knowledge of fisheries and/or marine sciences (i.e., marine biology and oceanography)	Assessment of knowledge of fisheries and/or marine sciences with regard to applicable 200- and 400-level courses, and upon graduation **Goal:** majority of students show growth between introductory and capstone experiences. **Goal:** Majority of graduating students meet or exceed entry-level professional standards	**Courses:** FISH 200-400 level, MBI 200-400 level, OCN 200-400 level. **Artifacts:** a) Annual assessment of students completing introductory course and capstone experience by faculty teaching these courses b) Annual assessment instrument of students graduating from the program
Exhibit entry-level employment skills through experiential learning	Assessment of skills developed through experiential learning/internship program. **Goal:** majority of students meet or exceed entry-level professional standards.	**Courses:** FISH F315, FISH F490, MBI F220, MBI F423, MBI F450, MBI F457, MBI F499, OCN F425, OCN F499 **Artifacts:** a) Mentor evaluation form for experiential learning/internship program b) Faculty assessment at end of field courses

Submitted by:

Intended Objectives/Outcomes	Assessment Criteria and Procedures	Implementation (what, when, who)
Prepare to compete successfully for admission to graduate programs or career positions in fisheries, marine sciences or their chosen fields	Assess employment or graduate school goals and success rates **Goal:** Of the graduates who are seeking admission to graduate school or employment in a fisheries, marine sciences or their chosen field, majority will succeed within one year of trying.	Courses: FISH 400 level, MBI 400 level, OCN 400 level. **Artifact:** a) Exit interviews and one-year post-graduation survey (annually, academic programs staff).

Submitted by: